



UNITED STATES MARINE CORPS

2D MARINE AIRCRAFT WING
U. S. MARINE CORPS FORCES COMMAND
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WgO 3710.40B

DSS

2 Aug 07

WING ORDER 3710.40B

From: Commanding General, 2d Marine Aircraft Wing
To: Distribution List

Subj: 2D MARINE AIRCRAFT WING STANDING OPERATING PROCEDURES FOR
BIRD AIRCRAFT STRIKE HAZARD AVOIDANCE AND RISK MANAGEMENT
(SHORT TITLE: 2D MAW BASH SOP)

Ref: (a) OPNAVINST 3750.6R
(b) OPNAVINST 3710.7R
(c) WgO 5100.29
(d) AirStaO 3000.2A
(e) Bird Avoidance Model (BAM) Data
(f) DoD Flight Information Publication (FLIP) AP/1B

Encl: (1) Bird Watch

1. Situation. To provide 2d Marine Aircraft Wing (2D MAW) units with a program that facilitates the reduction of the overall bird strike hazard by minimizing the exposure of USMC aircraft during predicted high-threat periods. This Order provides guidance and prescribes conduct for flight in terminal areas; outlying fields; and military training, local low-level and terrain flight routes (TERF) to mitigate the bird strike risk for all 2D MAW aircraft.

2. Cancellation. WgO 3710.40A.

3. Mission. The bird strike hazard is well documented in Naval aviation. Since the Naval Safety Center began recording bird strike events in 1980, over 20,000 bird strikes have occurred resulting in two fatalities, 25 aircraft destroyed, and over 310 million dollars in damages. The combined efforts of our aviators and installation environmental officers can significantly reduce the overall threat to aircrews and aircraft.

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distribution is unlimited.

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4. Execution

a. Commanders Intent and Concept of Operations

(1) Commanders Intent

(a) The primary means to reduce the bird strike hazard is to avoid high-risk areas that contain the greatest concentration of bird activity. This proves challenging due to seasonal, and even daily, bird migration and movement patterns that create the varying degrees of risk.

(b) Several on-line tools have been developed to assist aviation planners with predicting high-risk areas. By using these predictive tools we can emplace restraints on select operating areas or flight profiles to reduce exposure and thus the likelihood of a bird strike.

(c) This order directs subordinate Marine Aircraft Group and Squadron Commanders to ensure that all 2D MAW aviators utilize these tools that will assist them to make the correct BASH risk management decisions for daily flight operations.

(2) Concept of Operations

(a) Bird Strike Hazard Assessment Tools. There are two on-line tools currently available to assist aviation planners to forecast the density of bird activity in a given geographical area for a selected period of time. Both tools are accessible though the internet and the World Wide Web.

1. The first tool is called the Avian Hazard Advisory System (AHAS). By utilizing the AHAS website at www.usahas.com the user can obtain an estimate of bird activity for a select geographical area during a specific local time.

2. AHAS uses the NEXRAD weather RADAR system to monitor large-scale migratory bird activity in the lower 48 states. Current bird activity conditions depicted on the AHAS web page include density predictions from both migration and soaring bird activity. The data available from the NEXRAD weather RADAR is the more accurate of the two forms of data available to users; however AHAS predictions are only valid within 24 hours of the current local time.

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3. For bird activity estimates beyond the current 24 hour window a different tool called the bird avoidance model (BAM) is used. This product was developed by the United States Air Force and is a predictive model that analyzes correlations of bird habitat, migration, and breeding characteristics combined with key environmental factors and man-made geospatial data. The BAM offers less accurate predictions than the AHAS data augmented by the NEXRAD RADAR, but is valuable nonetheless for initial aviation mission planning efforts.

4. Although employing two different systems, both AHAS and BAM are tools that offer a viable means to forecast bird densities within select geographical areas for a specific point in time and therefore shall be used by all 2D MAW aviators.

(b) BASH Condition Codes. As discussed above, the predicted location and density of birds is scientifically measured. This information is used in a BASH forecast that defines three threat categories as being Low, Moderate, or Severe. All 2D MAW aircrew are required to be aware of the current bird condition for the areas where they intend to fly, and adhere to the constraints and restraints as specified in this order for the BASH Condition present. AHAS is the primary tool used, however this information must be coupled with Automatic Terminal Advisory System (ATIS) broadcasts and other similar information systems, as well as pilot observations reported back to controlling agencies. The BASH Condition Codes are defined below.

1. Low. Concentrations of bird activity represent a low probability of becoming a hazard to flight operations. No constraints or restraints exist on flight operations.

2. Moderate. Concentrations of birds observed in select locations represent a probable hazard to safe flight operations. See Table 1 for platform specific requirements and possible prohibitions.

3. Severe. Concentration of birds observed in select locations present a likely and immediate hazard to safe flight operations. See Table 1 for prohibitions.

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4. Bird Watch Alert. A bird watch alert is an advisory broadcast made by local control tower and air traffic control personnel when weather, time of day, or seasonal conditions increase observed bird activity. During a bird watch alert the density of bird activity does not meet the threshold to formally set a Moderate or Severe BASH Condition - it simply raises the level of awareness within a select operating area. Personnel involved with flight operations are required to monitor the BASH Conditions during a bird watch alert in the event that actual bird activity increases causing a Moderate or Severe BASH condition to be set. See the enclosure.

(c) General Guidance and Aircrew Responsibilities. If not otherwise stated in this Order, the following general decision guidance shall be adhered to. Squadron Commanding Officers are the flight authority for operating in areas with Moderate BASH conditions; Group Commanding Officers are the flight authority for operating in areas with Severe BASH conditions. Any commander can impose more stringent restrictions than are outlined in the Order as deemed prudent.

(d) Pilot and aircrew responsibilities. Pilots shall adhere to the stipulations outlined in Table 1 and good judgment and sound Operational Risk Management must be applied. Similar to the requirement for pilots to report inclement weather conditions encountered via pilot reports, pilots and aircrew are also required to report any dense bird activity encountered in order to raise the situational awareness of those aviators who will fly in the airspace next.

(e) Formation Takeoffs. When Moderate BASH conditions are reported in the vicinity of an airport, formation flight departures under visual meteorological conditions should be modified. Fixed wing aircraft departures should employ 20 second intervals on takeoff and remain in trail with the rejoin beginning after passing 3,500' AGL. Rotary wing aircraft are permitted formation takeoffs as long as it is possible to circumnavigate the bird activity in the vicinity of the airfield. If low ceilings or obscured sky conditions are observed, single ship takeoffs are required since the low clouds will force bird activity closer to the ground or in the airspace immediately above the low overcast sky condition.

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(f) Assessing Aircraft Damage and Reporting. The extent of damage caused by a bird strike cannot be accurately assessed in flight. Bird strikes that appear to cause only minor damage can actually cause substantial and even catastrophic failures of underlying components. Therefore, missions shall be aborted if a bird strike occurs until the extent of the damage can be determined by an inspection conducted on the ground. Treat bird strikes as a "land as soon as practicable" event whereas the continuation of the flight is not recommended and the flight duration and landing site is left to the discretion of the pilot in command. If when the inspection is complete and no significant damage is detected, the flight may be continued at the discretion of the pilot in command and in accordance with local command standing operating procedures.

(g) If a bird strike is sustained during a flight, the pilot in command of the aircraft is responsible for reporting the incident. This is normally accomplished working with the unit's aviation safety officer. A Flash report and a Bird/Animal Strike Hazard Report must be submitted from the Squadron via the Group to 2D MAW. The BASH report shall be submitted using the Web Enabled Safety System (WESS) with a second copy sent via facsimile or e-mail to the Wing Department of Safety and Standardization (during normal working hours) or the Wing Duty Officer (after normal working hours). Base environmental shall also be notified and the remains of the bird examined to determine species to better access habitat and migration trends that conflict with local flight operations.

(h) Bird Hazard Working Groups. Each Marine Aircraft Group in 2D MAW will work with their counterpart Marine Corps Air Station to establish a local Bird Hazard Working Group. The intent is to keep the working groups' focus on local BASH procedures and installation specific issues. Representatives from the MAG Department of Safety and Standardization, Airfield Management, Base Operations, Air Traffic Control, Civil Engineering, and Wildlife Services should be in attendance. A formal Working Group meeting shall be held at least annually, and the minutes and working group reports shall be submitted to the 2D MAW Department of Safety and Standardization for review. The Wing Aviation Safety Officer will look for trends and best practices that can be applied throughout the Wing.

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5. Administration and Logistics

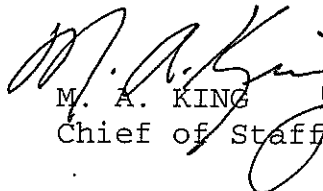
a. BASH and Contingency and Combat operations. Bird strike hazards like all hazards to flight must be assessed and mitigated during contingency and combat operations just as during peacetime training. Flight profiles and routes flown during contingency and combat operations may need to be altered to reduce the likelihood of a bird strike. The principles of Operational Risk Management and common sense must apply when developing policies during contingencies and combat operations.

b. Point of Contact. The BASH point of contact for 2D MAW is the Wing Aviation Safety Officer located in the Joint Safety Office aboard MCAS Cherry Point; telephone number (252) 466-7132.

6. Command and Signal

a. Command. This Order is applicable to all 2d MAW units and personnel.

b. Signal. This Order is effective on date signed.


M. A. KING
Chief of Staff

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Bird Watch

Airfield	Low	Moderate	Severe
Tactical Jet	Normal Operations - No special considerations; constraints or restraints	Limit number of takeoffs, RADAR & instrument approaches, and touch-and-go landings to meet mission requirements	Limit takeoffs to those considered operational necessity and recoveries to a full stop - no pattern work is authorized
Transport Aircraft (Prop and Jet) and Tiltrotor (as appropriate)	Normal Operations - No special considerations; constraints or restraints	Limit number of takeoffs, RADAR & instrument approaches, and touch-and-go landings to meet mission requirements	Limit takeoffs to those considered operational necessity and recoveries to a full stop - no pattern work is authorized
Helicopter and Tiltrotor (as appropriate)	Normal Operations - No special considerations; constraints or restraints	Adjust takeoffs and landings to a part of the airfield that reduces the chances of a bird strike All FOD screens shall be installed	Adjust takeoffs, landings, and pattern work to portions of the airfield where less hazardous conditions exist All FOD screens shall be installed
IAT / TERF	Low	Moderate	Severe
Tactical Jet	Normal Operations - No special considerations; constraints or restraints	Adjust route of flight to reduce likelihood of a bird strike - Minimum altitude is 1,000' AGL - Avoid legs that are predicted as being Moderate or Severe	Maintain a minimum altitude of 3,500' AGL
Transport Aircraft (Prop and Jet) and Tiltrotor (as appropriate)	Normal Operations - No special considerations; constraints or restraints	Adjust route of flight to reduce likelihood of a bird strike - Minimum altitude is 1,000' AGL - Avoid legs that are predicted as being Moderate or Severe	Maintain a minimum altitude of 3,500' AGL
Helicopter and Tiltrotor (as appropriate)	Normal Operations - No special considerations; constraints or restraints	The lookout aircraft or "high bird" will advise the TERF aircraft of bird activity - adjust the route accordingly All FOD screens shall be installed	All aircraft will adjust flight path, altitude, and airspeed to avoid bird concentrations All FOD screens shall be installed
Range Work	Low	Moderate	Severe
Tactical Jet	Normal Operations - No special considerations; constraints or restraints	Minimum recovery altitude is 1,000' AGL	Minimum recovery altitude is 3,500' AGL
Transport Aircraft (Prop and Jet) and Tiltrotor (as appropriate)	Normal Operations - No special considerations; constraints or restraints	Minimum recovery or working altitude is 1,000' AGL	Minimum recovery or working altitude is 3,500' AGL
Helicopter and Tiltrotor (as appropriate)	Normal Operations - No special considerations; constraints or restraints	All flights will conduct a range sweep to ensure the bird concentrations and activities facilitate safe operations. Ordnance delivery patterns shall be adjusted to avoid concentrations All FOD screens shall be installed	Avoid bird concentrations - or terminate range operations if avoidance is not possible All FOD screens shall be installed

Enclosure (1)